January 23, 1940

Dr. C. M. A. Stine, Vice President
E. I. du Pont de Nemours and Company
Wilmington, Delaware

Dear Dr. Stine:

We are carrying on an attack on the structure of proteins by various physical and chemical methods. Our x-ray studies have so far been mainly on crystals of amino acids and peptides, and now we are extending them to proteins themselves and related substances. Dr. R. B. Corey, who was with Wyckoff at the Rockefeller Institute for Medical Research before he came here, has prepared x-ray photographs of native globular proteins as well as of some fibrous proteins, and we have reached the conclusion that the most promising point of attack by x-ray methods would be on very well oriented fibers. It is our plan to spin various native proteins from coagulating baths so as to obtain fibers of these materials of maximum orientation for our x-ray investigations, and also to apply a similar spinning process to synthetic polypeptides of known composition. The spinning techniques would be similar to those employed in the manufacture of rayon and other artificial fibers but the characteristic properties of the individual proteins would probably require modifications which would be determined by experiment. We hope that one of the results would be the correlation between the physical and chemical properties of these substances and the conditions best suited to the production of highly oriented fibers. Our principal goal is, however, the discovery of the detailed molecular structure of native proteins.

The solution of our problem will entail a rather comprehensive program of work upon the methods and apparatus of spinning and their relation

to molecular orientation in a great variety of substances. Our x-ray laboratory is very well equipped and the men here, especially Dr. Corey, have had much experience in the x-ray work. Dr. Corey has suggested that the prosecution of the investigation could be helped very much by cooperation with your laboratory, and I am writing to you in the hope that you would be interested in assisting with the work in some way. We need an able man who would devote his attention exclusively to the spinning problem. Would you be interested in providing a post-doctorate fellowship at this Institute for this purpose? It would, of course, be most satisfactory is one of the men in your laboratory with experience on the problem of spinning fibers could come here to work with us in this investigation.

At present there is much activity here in the field of the structure of proteins. Dr. Corey is doing x-ray work on the proteins themselves, four post-doctorate fellows (Drs. E. W. Hughes, Henri Levy, A. J. Stosick, and C. S. Lu) are working on the determination of the structures of peptides and related substances, Drs. Harrison Davies and J. N. Wilson are working on the properties of hemoglobin, and Dr. Dan H. Campbell is beginning the synthesis of polypeptides of known structure under the direction of Professor Carl Niemann. Professor Niemann has several chemical investigations relating to proteins under way.

A decade ago, when you were providing at the Institute a pre-doctorate du Pont Fellowship, the work of our department lay almost exclusively in the field of physical chemistry. Our activities have now been greatly extended along organic chemical lines; the staff includes Professors H. J. Lucas, Carl Niemann, A. J. Haagen-Smit, and L. Zechmeister, who is to

begin residence next month, and also Drs. E. R. Buchman and J. B. Koepfli. With this new activity in organic chemistry begun here, I have been hoping that you might think it worth while to again provide a pre-doctorate fellowship at this Institute.

I wish to extend to you my congratulations on your receipt of the Perkin Medal.

Sincerely yours,

Linus Pauling

LP/jr